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Lessons from the Abyss: Reflections on Recent Fisheries Crises in Atlantic Canada and North Norway

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Lessons from the Abyss: Reflections on Recent Fisheries Crises in Atlantic Canada and North Norway[1]

This paper examines some of the basic economic, political and scientific assumptions we have utilized to organize fisheries activities in the North Atlantic. In particular, we discuss and criticize our commitments to corporate economic organization, centralized administrative structures, and conventional science. In addition, we raise questions about the obligation of our respective nation-states to the coastal communities which have most directly been affected by the social policies emanating from our institutional commitments.

Introduction

The crises of the late 1980s in the Atlantic Canadian and North Norwegian groundfisheries have once again provoked interest in the underlying economic, political, and social principles on which we have organized our fisheries.[2] In this essay, we will try to elaborate on some of the basic assumptions behind the organization and management of our fisheries—assumptions we believe are now being reevaluated—and indicate some of the alternatives which are being considered. Is our commitment to corporate economic organization economically rational or socially desirable? Do our centralized and hierarchical administrative structures generate good policy,

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1. We want to acknowledge the generous research support the John D. and Catherine T. MacArthur Foundation has given us over the past three years to participate in a seven-person, interdisciplinary project on markets and trade, entrepreneurship and communities, and resource regimes in Atlantic Canada and North Norway. While our work goes back over a considerably longer period, we have benefited enormously from the project collaboration. Our co-investigators-Gene Barrett, Petter Holm, Leigh Mazany, Bonnie McCay and Svein Jentoft-share no public responsibility for the opinions expressed here. We will, however, hold them personally accountable for every piece of criticism we receive.

2. We have tried to establish the comparability of our two regions, at least for purposes of looking at resource dependency problems, in an earlier essay. See R. Apostle & K.H. Mikalsen, "The Politics of Fishery Management: Preliminary Comparisons of Regulatory Regimes in North Norway and Nova Scotia" (1993) 6 Scandanavian-Canadian Studies 47. As marginal North Atlantic areas in countries which are themselves minor components of two of the world's major trading blocs, there are an impressive number of commonalities, and some crucial differences, which make them excellent candidates for comparative work.

equitable allocation processes, and fair enforcement? Can we create a better set of connections between different types of resource-based communities, fluctuating stocks and international markets for fish products?

Whatever the attitudes and policies of particular governments, the larger society bears an obligation to help coastal communities. This obligation is directly related to thirty years of tolerance of both national and international over-exploitation of fish stocks, with little thought to the longterm ecological or social consequences.[3] We think our experience with, and knowledge of, basic and applied debates which have led to the current state of affairs in both countries, may help illuminate some of the choices we will have to confront over the next decade.

We will present our comments in separate sections on industrial organization, class structures, political institutions, and cultures. Although there are obvious interconnections among these domains, we will initially try to address major issues in each area, and attempt to evaluate complementary and contradictory associations in a concluding section. We will begin with a brief account of the major crises which have recently confronted our two fisheries systems, and the differing outcomes we have so far encountered.

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3. The obligation to assist coastal communities also pertains to the question of aboriginal rights in the fisheries. This question may not be as important in Atlantic Canada as in British Columbia and North Norway. Nevertheless, some interesting changes and debates are occurring. In a recent case *R. v. Sparrow* [1990] 1 S.C.R. 1075, 4 W.W.R. 410, the Supreme Court of Canada ruled that aboriginal rights to fish for food, social and ceremonial purposes have constitutional protection where they exist. These rights give aboriginals first priority to fish in areas of traditional activity, save for demonstrable conservation requirements. There has been considerable debate about the ramifications of this ruling for broader aboriginal rights. Some commentators think that the case may weaken aboriginal claims for commercial fisheries. (W.I.C. Binnie, "The Sparrow Doctrine: Beginning of the End or End of the Beginning?" (1990) 15 Queen's L.J. 217) Others are concerned that "the Court has expanded its own discretionary power, and propelled itself toward a new and questionable role as a constitutional department of fisheries". (D.W. Elliott, "In the Wake of *Sparrow*: A New Department of Fisheries" (1991) 40 U.N.B.L.J. 23 at 42) Whatever the outcome of the general debate, it is already clear that the issue of aboriginal rights is beginning to have practical ramifications. Four Yarmouth-area men were recently charged with break and enter and assault in connection with a dispute over aboriginal rights in the lobster fishery. To quote Rob Gorham, "Since late August three boats used by Micmac fishermen have been burned, a fourth boat was smashed, and fishing gear has been stolen. Some local fishermen are upset with non-natives, who they say are helping natives bend the rules relating to fishing under treaty rights" (*The [Halifax] Chronicle Herald* 20 October 1992 at 1)

In Norway, this issue concerns the fishing rights of the Saami, and the Saami Parliament has been particularly active pursuing this issue—with reference to international legislation (ratified by Norway) aimed at protecting the interests of aboriginal peoples. Legal experts have concluded that a more direct participation by Saami user groups in management decision-making is in order, and that discrimination beneficial to Saami fishers and their communities is legally defensible if necessary to sustain Saami culture. In 1992 the Saami Parliament was authorized to appoint a delegate to the National Regulatory Council.

I. *Fisheries Crises*

It is a commonplace observation that commercial fisheries are subject to periodic crises typically associated with fluctuations in resource availability or market conditions. The causes of these fluctuations are various. Resource changes are frequently attributed to overfishing, environmental conditions, "natural" stock fluctuations, or some combination of these factors. Market circumstances may vary due to competing supplies or trade relations. Competing supplies may include the same species from other sources, regions, or countries; economic factors include trade barriers and exchange rates.

Since the 1977 declaration of 200-mile exclusive economic zones by the industrial world's major fishing nations, Atlantic Canada has experienced two significant fishing "crises", while North Norway has had one. In the early 1980s, the Atlantic Canadian fishing industry went through an economic downturn which focused on the financial difficulties of large-scale, vertically-integrated companies in Newfoundland and Nova Scotia. These companies, which typically combined substantial offshore harvesting capacity with relatively large on-shore processing plants, could not sustain the expansion they created to take advantage of the apparent opportunities created by the exclusion zones. As a consequence, the federal government and central financial institutions participated in a financial restructuring of the companies which met with some disapproval in the industry and general public.[4]

A second set of resource-driven crises affected Atlantic Canada and North Norway in the late 1980s.[5] In both instances, a rapid and unanticipated decline in cod stocks created widespread hardship in the two regions.[6] To this point, however, there is considerable difference in the resolution of the two crises. The Barents Sea stocks have rebounded

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4. M. Kirby, "Restructuring the Atlantic Fishery: A Case Study in Business-Government Relations" (Paper presented at Dalhousie Law School, 1 March 1984); Canada, *Navigating Troubled Waters. A New Policy for the Atlantic Fisheries* (Ottawa: supply and Services Canada, 1983) (Chair: M.J.L. Kirby) [hereinafter *Kirby Report*]; E. Weeks & L. Mazany, *The Future of the Atlantic Fishery* (Montreal: The Institute for Research in Public Policy, 1983).

5. Canada, *Report on Scotia-Fundy Groundfish Management from 1977 to 1993* by J.R. Angel *et al.* (Dartmouth: Bedford Institute of Oceanography, 1994); Canada, *Independent Review of the Northern Cod Stocks* by L. Harris (Ottawa: Minister of Supply and Service, 1990); S. Jentoft, *Dangling Lines, The Fisheries Crisis and the Future of Coastal Communities: The Norwegian Experience* (St. John's: Institute of Social and Economic Research, 1993); B. Sagdahl. ""Ressursforvaltning og Legitimitetsproblemer" (Rapport No. 15/92-20, Nordland Research Institute, Bodo, 1992).

6. O. Otterstad & S. Jentoft, eds., *Leve Kysten? Strandhogg i Fiskeri Norge* (Oslo: Ad Notam/ Gyldendal, 1994).

sufficiently to permit resumption of a substantial fishery,[7] whereas Newfoundland and much of the Maritimes, save Southwest Nova Scotia, remain inactive under groundfish moratoria which began in the summer of 1992. While there is still substantial caution about future prospects in North Norway[8], there is deepening pessimism about the likelihood of a short-run recovery for Atlantic Canadian cod, as well as other groundfish species.

II. *Industrial Organization*

There has been a relatively strong preference throughout the twentieth century to utilize large-scale corporate organization to reap the (assumed) benefits of scale in European as well as North American economies. This preference has even been extended to areas of the economy to which the form is ill-suited, and the subsequent lack of fit usually results in devolution towards dual, split or segmented capital and labour markets in which marginal sectors, at one level, accommodate unstable demand.[9] The fishing industry has proven to be one area in which larger business organizations either have not fared well, as in Atlantic Canada, or have never taken root, as in North Norway. Fluctuations in the availability of resources, and the lack of control over international markets, make planning in the industry difficult. These variations pose a particular threat to large-scale organizations which depend on a regular flow of raw material to supply institutional buyers or food chains, be they located in the United States or on the European continent.

In Atlantic Canada, the record of large-scale domestic harvesters and processors, although not definitively resolved, has not been impressive. We had to provide a substantial infusion of financial assistance to bridge the period of overexpansion in the early 1980s. Further, large domestic companies have found it difficult to make a consistent profit from their activities, even before the 1992 moratorium on northern cod.[10] By contrast, some of the small- and intermediate-scale operations have

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7. The improvement in the Barents Sea cod stock is reflected in the increase of the TAC—from 113,000 tonnes in 1991 to 248, 000 tonnes in 1993 and 336,000 tonnes for 1994.

8. G. Barrett & S. Jentoft, "The Global Fishing Village. Finnmark: A Canadian Fisheries Scenario" (Paper presented at the 1994 American Fisheries Society Annual Meetings, August 1994).

9. R. Apostle, D. Clairmont & L. Osberg, "Segmentation and Labour Force Strategies" (1985). 10 Can. J. of Socio. 253.

10. *Kirby Report, supra* note 4; K. Barrett, "Financial Characteristics, 1974–1984" in R. Apostle & G. Barrett, eds., *Emptying Their Nets. Small Capital and Rural Industrialization in the Nova Scotia Fishing Industry* (Toronto: University of Toronto Press, 1992) [hereinafter *Emptying Their Nets*].

proven to be quite economically resilient over the same period[11], although the current stock crisis is obviously affecting them as well. The continuing difficulty that commitment to large-scale organizational forms poses is the question of adaptability. If and when the groundfish return, the investments which have already been made in vessels and plants create substantial pressure to resume business as before. We have constructed production systems which have relatively large numbers of jobs attached to them. Some of the larger rural communities have depended on this activity for their wellbeing, and they will exert considerable political influence to continue business as usual. Whether this is economically justifiable may not be a question which will reach the public agenda.[12]

The concept of the large scale corporate organization never really took hold in Norwegian fisheries.[13] The fish processing industry has always been dominated by small and medium-sized firms. In fact, three out of four have fewer than fifty employees[14]—and there is very little vertical integration[15]. In the Norwegian case, the structure of the industry reflects the fact that harvesting is done from small vessels out of small communities scattered along the coast. By contrast, Atlantic Canada combines larger, corporate-dominated towns with a substantial number of smaller plants and communities.

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11. *Emptying Their Nets, ibid.*

12. In the early 1980s, at the time of the financial restructuring of the Atlantic Canadian industry, Ernest Cadegan, then President of the Independent Seafood Producers of Nova Scotia, made a strong plea to let the large organizations go bankrupt, leaving the industry free to pick up the viable components of these organizations. See E. Cadegan, "The Role of the Private Sector in the Atlantic Fishery" (Speech presented at the Conference on the Future Fishery of Canada, White Point, Nova Scotia, 27 March 1984).

13. This is not to say that Norwegian fisheries lack vertically integrated firms and activities. The government sponsored the introduction of trawlers after World War II, and most of these were integrated with processing plants—such as the FI-NO-TRO (Finnmark and Nord-Troms processing industry) and Findus. See B. Lien, Findus og Norsk Fiskerpolitikk 1943–1956 (MA Thesis, University of Tromsø, 1975); B. Hersoug & D. Leonardsen, Bygger de Landet? (Oslo: Pax, 1979); Hersoug and Leonardsen, 1979. The latter is the largest in Norway—located in the county of Finnmark. It has its own fleet of trawlers and employs about 350 people—and is a part of the Nestlé corporation.

14. R. Apostle & S. Jentoft, "Nova Scotia and North Norway Fisheries: The Future of Small-Scale Processors" (1991) 15 Marine Policy 100; S. Jentoft, *supra* note 5.

15. There are, in fact, legal barriers against vertical integration in Norwegian fisheries. According to the so-called "Ownership Act" of 1956 (later incorporated into the Limited Entry Act of 1972), one has to be an active fisherman to own a vessel. There are, of course, exceptions to that rule, but such legislation has certainly been instrumental in preventing processors from acquiring control over harvesting. See K.H. Mikalsen, "Fiskeripolitikk som Ressursforvaltning" in K.H. Mikalsen & B. Sagdahl, eds., *Fiskerpolitikk og Forvaltningsorganisasjon* (Tromsø: Universitetsforlaget, 1992) 287. Another barrier, now lifted, was the Export Act that gave certain organizations a virtual monopoly over the marketing and sales of dried and salt fish in particular. See A. Hallenstevdt, *Med Lov og Organisasjon* (Tromsø: Universitetsforlaget, 1982).

The general trend in Norwegian fisheries during the 1980s was one of decline. Catches were down (by almost 20 per cent), as was the number of fishers (from 35,000 to 27,000) and the number of vessels (from 26,000 to 18,000) (St.meld. nr. 58, 1991–92). The number of plants declined from 857 in 1975 to 517 in 1990; the number of employees from 15,000 in 1980 to 10,500 ten years later.[16] In North Norway, the decline was particularly sharp in the latter half of the 1980s, as the number of employees in processing was down by almost 50 per cent between 1984 and 1990. The northernmost, and most fisheries dependent county of Finnmark, was hit the hardest. Here the number of frozen fish producers (plants) has declined sharply since 1985, as has the number of employees.[17] The main explanation: lack of fish due to severe quota restrictions. Recent trends, however, are more encouraging. The stocks have bounced back sooner than expected, quotas are larger, and there has been an increase in Russian landings due, in part, to a lifting of import restrictions through an amendment of the so-called Sea-Border Act. More than half the catches landed in Finnmark in 1992 came from Russian trawlers, and it is generally agreed that these landings helped parts of the North Norwegian industry survive. The problem, of course, is the uncertainty of future Russian landings.

The industry has changed as a consequence of the crisis. Although a substantial number of small-scale operators have gone out of business, there are signs of an economic revival along the North Norwegian coast. The overall impression is one of a leaner but fitter industry. The crucial question, of course, is whether this will last—and to what extent the industry has learnt any lessons and will be better prepared should a crisis hit again.

III. *Class Structure*

The relevant class structures and associated interest groupings, political parties, and occasional social movements vary substantially across Atlantic Canada, as well as within the country as a whole.[18] In Atlantic

16. O. Otterstad, "Norsk Fiskerinæring fra 1945 til 1992: Et Tilbakeblikk på en Avsluttet Syklus" in O. Otterstad & S. Jentoft, eds., *supra* note 6, 15.

17. M. Ådnanes, "Fiskeindustrien—Omstilling i Sor Og Krise i Nord?", in O. Otterstad & S. Jentoft, eds., *ibid.*, 169.

18. *Emptying Their Nets, supra* note 10; W. Clement, *The Struggle to Organize: Resistance in Canada's Fishery* (Toronto: McClelland and Stewart, 1986); J.D. House, "The Mouse That Roars: New Directions in Canadian Political Economy" in R. Brym, ed., *Regionalism in Canada* (Toronto: Irwin Publishing, 1986); P. Marchak, N. Guppy & J. McMullan, *Uncommon Property: The Fishing and Fish Processing Industry in British Columbia* (Toronto:

Canada, the major contrast is that between Newfoundland and Nova Scotia. In Newfoundland, there is a reasonably clearcut bifurcation which divides direct or petty producers from the corporate sector. By contrast, Nova Scotia has a heterogeneous class structure, with significant internal divisions between direct and petty producers. In part, this interprovincial difference is connected to the fact that shellfish, particularly lobster and scallops, provide significant supplementary or alternative sources of income in Nova Scotia. It is also associated with a greater variety of conflicting gear types, and with closer proximity to New England markets which in turn lessens dependence on centralized marketing.[19]

In terms of class cultures, most of the Newfoundland fishery has a more conventional working class perspective, whereas free enterprise ideology is more prevalent in Nova Scotia. Correspondingly, much of the Newfoundland industry receives representation through a trade union, whereas the Nova Scotia industry tends to prefer associational representation or, more radically, no organized representation at all. The multiplicity of voices which has typified the Nova Scotia industry has both lessened their actual influence in a number of important domains, and has inadvertently strengthened the position of corporate interests.[20]

In Norwegian fisheries, there is a basic distinction to be made between inshore and offshore; between the owners and operators of large trawlers (most of which are vertically integrated), purse seiners and factory ships on the one hand and the large group of fishers operating smaller vessels and somewhat simpler technology in the fjords and along the coast. This dual structure, however, reflects differences in technology and gear types rather than deep-rooted cleavages between distinct social classes.[21]

Technological diversification has been decisive both in creating conflicts and in generating collective action. Although Norwegian fishers

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Methuen, 1987); P. Sinclair, "The State Goes Fishing: The Emergence of Public Ownership in the Newfoundland Fishing Industry" (Paper presented at the Annual Meeting of the Atlantic Association of Sociologists and Anthropologists, University of New Brunswick, March 1984).

19. Both neoclassically-oriented economists and radical political economists try to downplay the significance of this difference by locating the Nova Scotia complexities in "Southwest" Nova Scotia, and then dismiss that corner of the province as a minor exception to regional trends. The obvious problem with this blinkered perception is the fact that "Southwest" Nova Scotia accounts, by various measures, for 80 percent or more of the province's fishery.

20. This statement is not meant to overlook the support provincial and federal governments have given to non-union alternatives. Nevertheless, there are different opinions within government, some of which argue that any form of organization, including unions, is preferable to the plethora of small groupings which undermine "rational management" of the fisheries.

21. This division has both regional and community-level components. The offshore is disproportionately located in large population centers in western and southern areas of Norway.

were comparatively late in organizing[22], and have kept a diversified pattern of fairly independent associations, they were quick to learn the art and craft of collective action. Unlike their Atlantic-Canadian counterparts, Norwegian fishers have long been represented by a nationwide organization, the Fishers Association. In spite of being a somewhat loose federation of regional and functional groups—prone to internal conflict and dissent—this organization has provided efficient representation for most groups of fishers.[23] The drive towards organization and coordination, supported by government through legislation[24], reflects a political culture that is collectivist and group-oriented—with a clear understanding of organization as a basic precondition for the efficient representation of group interests.[25] Collectivist attitudes have also found expression in strong support for the Labour Party among North Norwegian fishers in particular.[26]

IV. *Political Institutions*

The political institutions which frame the Atlantic Canadian fishery are, in the international context, quite hierarchically organized, with the federal Minister of Fisheries and Oceans having powers which are not exceeded in other democratic industrial regimes, or within the Canadian federal system. Since the federal government controls a substantial majority of fishing industry's activities[27], it should come as little surprise that fisher involvement in the system is limited by a complex "consultative management" scheme in which the Department of Fisheries and Oceans (DFO) generally retains control over the nature and extent of input that industry can make. In the Scotia-Fundy region of DFO, which

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22. A. Hallenstvedt, *supra* note 15.
23. B. Sagdahl, "Struktur, Organisasjon og Innflytelsesforhold i Norsk Fiskeripolitikk", in K.H. Mikalsen & B. Sagdahl, eds., *supra* note 15, 15; S. Jentoft & K.H. Mikalsen, "Regulating Fjord Fisheries: Folk Management or Interest Group Politics?" in C.L. Dyer & J.R. McGoodwin, eds., *Folk Management in the World Fisheries: Lessons for Modern Fisheries Management* (Niwot: University Press of Colorado, 1987) 287.
24. A. Hallenstvedt, *supra* note 15; P. P. Christensen & Hallenstvedt, *På Første Hånd* (Tromsø: Norges Rafisklag, 1990).
25. A. Hallenstvedt & B. Dynna, *Fra Skårunge Til Hovedsmann: med Norges Fiskerlag Gjennom 50 År* (Trondheim: Norges Fiskerlag, 1976); B. Sagdahl, in K.H. Mikalsen & B. Sagdahl, eds., *supra* note 15.
26. S. Rokkan, "Geography, Religion and Social Class: Crosscutting Cleavages in Norwegian Politics" in S.M. Lipset & S. Rokkan, eds., *Party Systems and Voter Alignments. Cross-National Perspectives* (New York: The Free Press, 1967) 367; H. Valen, *Valg og Politikk—et Samfunn i Endring* (Oslo: NKS-Forlaget, 1981).
27. L.S. Parsons, *Management of Marine Fisheries in Canada* (Ottawa: National Research Council of Canada, 1993).

includes most of Nova Scotia (save the North Shore), as well as South-west New Brunswick, there are over 30 consultative groups with over 500 members which meet almost a hundred times a year.

In Norway, fisheries decision-making is also centralized, but ministerial discretion is more confined than in Canada. This is, in particular, due to the organizational capabilities and coherence of fishers, and the long-standing tradition of consulting representatives of industry, through formal arrangements at the national level, before decisions are made.[28] In this sense, policies are made through a process of bargaining and centralized consultations—making the notions of powersharing and "partnership" more appropriate than the idea of ministerial discretion and hierarchical control.

The growth of government intervention from the 1970s onwards raises questions about the levels and types of user-group involvement in fisheries management, as well as questions about the information available for policy formulation. In the Scotia-Fundy context, the management system has vacillated between genuine consultation on the one hand and cooptation[29] on the other. In Norwegian fisheries, the management process is anchored to formal structures—providing a stable institutional framework for the articulation of user-group demands—sometimes at the expense of public governance and long-term planning.[30]

However, the current crisis has provoked some sharp debate, on both sides of the Atlantic, about the need to look more closely at the benefits of consultative practices and co-management arrangements.[31] In particular, it has been maintained that the quality of the information which underlies current policy-making is seriously flawed and would benefit from more inputs from "below". In Atlantic Canada, there is no lack of input as such, but there is clearly a problem of representation in the sense that those who speak do not necessarily do so on behalf of wider groups. The lack of clear-cut rules and procedures for the selection of members

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28. R. Hannesson, "Inefficiency Through Government Regulations: The Case of Norway's Fishery Policy" (1990) 2 Marine Resource Economics 115; A.H. Hoel, S. Jentoft & K.H. Mikalsen, "Problems of User-Group Participation in Norwegian Fisheries Management", Occasional Papers No. A 56 (Tromsø: Institute of Social Science, 1991).

29. D. MacInnes & A. Davis, "Representational Management or Management of Representation? The Place of Fishers in Atlantic Canadian Fisheries Management" (1990) Antigonish. St. Francis Xavier University.

30. K.H. Mikalsen, "Lovgivning, Eiendomsrett og Naeringspolitikk" in K.H. Mikalsen & B. Sagdahl, eds., *supra* note 15, 174; B. Hersoug, "Fiskerplanlegging—Offentlig Styring Eller Politisk Pliktøvelse?" in B. Hersoug, ed., *Kan Fiskerinæringen Styres?* (Oslo: Novus, 1983).

31. E. Pinkerton, ed., *Co-operative Management of Local Fisheries. New Directions for Improved Management and Community Development* (Vancouver: University of British Columbia Press, 1992).

to consultative committees makes the consultative stage open to the extent that it is not always clear whether those turning up at meetings represent anyone but themselves.

In Norway, the main problem is rather how to balance group influence and demands against ministerial direction and the public interest. Corporatist arrangements clearly entail privileged access, or even a representational monopoly, for "affected groups", and tend to exclude others that could claim a stake in fisheries management[32]. Moreover, there is the emphasis on logrolling and compromise within corporatist systems, and the understanding that a commendable policy, almost by definition, is one to which those involved can agree—or the one that is favoured by a winning coalition. In this sense, consensus and legitimacy rather than efficiency and governance are core values of the Norwegian management system.

However, the information problem is not just about consultation and representation. It also pertains, and increasingly so, to the role of contemporary fisheries science.[33] The basic challenge is twofold. On the one hand, fishers in both countries are increasingly dissatisfied that their local knowledge of specific conditions is not being systematically incorporated in scientific projections. Fishers think that they have important information which would modify or alter the management measures that basically follow from government surveys that employ scientific sampling techniques to cover large areas, as well as aggregated commercial catch data. In response, some DFO scientists have begun to create working groups which bring fishers and scientists together to talk about their different perspectives. Norwegian scientists have long attended the annual meetings and conferences of fishers' associations—lecturing as well as listening. Nevertheless, these experiments are limited, and there is a sense among fishers that, when in conflict, it is local perceptions which will be ignored.[34]

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32. Examples of such groups could be consumers, with a legitimate interest in the quality and availability of fish products, which may be affected by regulatory practices; regional and local authorities, since management decisions may affect employment opportunities and the welfare of local communities; environmental groups for the preservation of stocks and the balance of vulnerable ecosystems; and aboriginal groups concerned about the effects of management practices on historical rights and traditional ways of life.

33. A.C. Finlayson, *Fishing For Truth: A Sociological Analysis of Northern Cod Stock Assessments* (St. John's: Institute of Social and Economic Research, 1994); N. Gilbertson, "Chaos on the Commons: Salmon and Such" (1993) 6 Maritime Anthropological Studies 74; E. Smith, "Chaos in Fisheries Management" (1990) 3 Maritime Anthropological Studies 1; J. Wilson & P. Kleban, "Practical Implications of Chaos in Fisheries: Ecologically Adapted Management" (1990) 5 Marine Anthropological Studies 67.

34. S. Jentoft & K.H. Mikalsen, *supra* note 23.

The other basic challenge comes from within the scientific community itself. In Atlantic Canada, the recent crises have led members of the academy, as well as fisheries scientists, to re-examine the adequacy of the fundamental scientific assumptions on which their methodologies are founded. In particular, the complex dynamics of individual species, and the interrelatedness of different species, has created a surge of interest in new "chaos" theories which are designed to explain the behaviour of systems which are aperiodic, nonlinear, and sensitive to small disturbances.[35] If it is true that chaos theory provides a more efficient method for modelling the behaviour of fish stocks, and this remains to be demonstrated[36], much of the current scientific apparatus which is used to generate stock estimates for current allocation decisions may be dispensable. At one level, chaos theory leads in the direction of establishing simple, longterm estimates of acceptable harvest levels which means that one can dispense with the continuous need, under current systems, to collect information on yearly variations in individual stock levels.[37] The prospect that major scientific establishments are at risk has not gone unnoticed, and the debates at scientific meetings are beginning to reflect some of the potentially important practical implications of these controversies.

On the Norwegian side, this kind of soul-searching within the scientific community is more limited. The immediate crisis is over, and part of the blame can be attributed to foreign activities. There is, however, an increasing willingness among scientists to question the quality of biological data and the accuracy of stock assessments. There is also a little less disdain for inputs from fishers and for possible contributions from fisheries economists. Chaos theory has, as yet, made few imprints on debates about the role of science in fisheries management.

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35. It should be understood that we are still talking about deterministic systems in that chance is not an intrinsic element in the system, and it takes relatively few equations to describe the system. See S. Kellert, *In the Wake of Chaos* (Chicago: The University of Chicago Press, 1993). Further, the range of useful applications for chaos theory is still being explored among natural scientists. See also J. Gleick, *Chaos: Making a New Science* (New York: Viking Press, 1987). As a consequence, much of the current attack on positivism in the social sciences which is being conducted under the banner of chaos theory meets with amused derision among natural scientists.

36. J. Wilson *et al.*, "Managing Unpredictable Resources: Traditional Policies Applied to Chaotic Populations" (1990) 13 Ocean and Shoreline Management 179.

37. For one effort to establish a longterm harvesting goal for northern cod, see D.H. Steele, R. Andersen & J.M. Green, "The Managed Commercial Annihilation of Northern Cod" (1992) 8 Newfoundland Studies 34. Although not guided by chaos theory, this work recognized that overall biomass is a relatively stable feature of most fisheries systems.

V. *Cultures*

The first, and most important, observation to make about cultures in our regions is that the small rural communities which are the locus of fishing activity are increasingly incorporated in urban and national cultural systems, as well as international ones. The notion that we are dealing with people whose work and lifestyles are at marked variance with the larger society is a less justifiable one. In many ways, individuals and households in fishing communities look much like those located in other parts of Canada and Norway[38], and share the same material desires and family goals. Further, there is increasing evidence of the impact of international cultures in rural fishing communities. In both Nova Scotia and North Norway, everything from the trivial example of the string of satellite dishes on Digby Neck and in Båtsfjord, to the more significant accumulation of knowledge about international industrial and marketing trends, provide testimony to the importance of international considerations in the daily life of fishing communities on both sides of the Atlantic.

Still, in Atlantic Canada, there are irreducible differences in the capacity of our health, education and welfare systems to deliver services to more rural areas, and people located there are disadvantaged in some respects. And, unfortunately, the economic recession has had the effect of worsening some of the discrepancies. Nevertheless, many people currently living in smaller, more rural communities are prepared to trade off institutional benefits for the social and cultural richness which is moderately associated with local kin and other networks.[39] It is also important to note that many people in these rural areas are home owners and, with modest educational backgrounds, have no reasonable prospects of acquiring similar accommodation if they move.

In Norway, political commitment to the welfare state remains strong, and has led to a high level of standardization across regions and communities. Access to health services, education and other welfare goods does vary, but variation has decreased over time[40], and rural communities are not disadvantaged in any systematic way. Growing up—or growing old—in rural areas may even, in some cases, be a privilege, given the availability of basic services and the richness of social networks. That said, it deserves to be noted that outmigration has been a long-standing

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38. *Emptying Their Nets, supra* note 10; O. Brox, *Nord-Norge: Fra Almenning til Koloni* (Tromsø: Universitetsforlaget, 1984); I.L. Høst & C. Wadel, eds., *Fiske og Lokalsamfunn* (Tromsø: Universitetsforlaget, 1980).

39. L. Felt & P. Sinclair, "Home Sweet Home! Dimensions of Determinants of Life Satisfaction in an Underdeveloped Region" (1991) 16 Can. J. Socio. 1.

40. G. Hernes & K. Knutsen, "Utdanning og Ulikhet" (1976) NOU 46; S. Kuhnle & L. Solheim, *Velferdsstaten—Vekst og Omstilling* (Oslo: Tano, 1991).

problem in fishery-dependent communities. People have tended to move out in search of employment and higher education, and one would expect the recent fisheries crisis to have strengthened this trend. This, however, has not been the case, as outmigration in fact decreased after the crisis struck. The explanation, according to Jentoft[41], is probably the fact that the general level of unemployment was high—and the prospects of getting a job by moving bleak.

Another general set of issues which is drawing deserved attention concerns the contributions women make to fishing economies and community survival. Academic work, until recently, has tended to neglect the indispensable roles women occupy in a wide variety of activities necessary for continuance of Atlantic Canadian as well as North Norwegian fishing communities.[42] Not only do women contribute irreplaceable paid labour to processing operations[43], they also, in some cases, hold executive positions in processing firms[44], and they frequently constitute the financial and organizational components of many harvesting operations.[45] Further, depending on the types of harvesting prevalent in the community, they may also staff and lead community institutions.[46] And, as always, women do a disproportionately high share of the work in the household itself.[47]

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41. S. Jentoft, "Hvordan Forløp Fiskerkrisen?", in O. Otterstad & S. Jentoft, eds., *supra* note 6, 45.
42. E. Antler, "Women's Work on Newfoundland Fishing Families' (1977) 2 Atlantis 106; P. Barber, "Household and Workplace in 'Northfield' ", in *Emptying Their Nets, supra* note 10, 272; S.S. Larsen, "Omsorgsbonden" (1980) 21 Tidssfrift for Samfunnsforskning 283; M. Binkley & V. Thiessen, "Ten Days a Grass Widow—Forth-Eight Hours a Wife": Sexual Division of Labour in Trawlermen's Households" (1988) 8 Culture 39; P. Connelly & M. MacDonald, "Women's Work: Domestic and Wage Labour in a Nova Scotia Community" (1983) 10 Studies Pol. Economy 45; M. Porter, "Peripheral Women: Towards a Feminist Analysis of the Atlantic Region" (1987) 23 Studies Pol. Economy 41; S. Jentoft, V. Thiessen & A. Davis, "The Veiled Crew: An Exploratory Study of Wives" (1992) 54 Human Organization 342.
43. M. Lie, ""Kvinner på Filetfabrikk 1943–56" in I.L. Høst & C. Wadel, eds., *supra* note 31 at 165; S. Ilcan, "Women and Casual Work in the Nova Scotian Fish Processing Industry" (1986) 11 Atlantis 23; M. Giasson, "Capital and Work-Force Adaptation in Clare" in *Emptying Their Nets, supra* note 5, 232; S. Gerrard, "Kvinner i Fiskeridistrikter: Fishkerinæringa "Bakkemannskap"" in B. Hersoug, ed., *Kan Fishkerinœinga Styres?* (Oslo: Norvus, 1983) 217.
44. M. Husmo, "Kvinnelige Fiskeindustriledere", in O. Otterstad & S. Jentoft, eds., *supra* note 6, 191.
45. S. Gerrard, "Kvinners Forvaltning—Havets Husholdning" in O. Otterstad & S. Jentoft, eds., *ibid.*, 123; L.T. Pettersen, "Hovedsaken er at Kjerringa er i Arbeid", in O. Otterstad & S. Jentoft, eds., *ibid.*, 65.
46. L. Holtedahl, *Hva Mutter Gjør er Alltid Viktig* (Oslo: Universitetsforlaget, 1986).
47. *Emptying Their Nets, supra* note 10.

The difficulties with our understandings of community, gender and culture are twofold. The first problem exists in both Canadian and Norwegian social science, and concerns the necessarily qualitative nature of much of this kind of analysis. Studies of culture, community, household and gender must frequently be done in a non-quantitative way because of the complexity of the issues being examined. As a consequence, these studies are at an immediate disadvantage in policy debates which privilege natural science discourses in biology and economics.

The second problem relates to the fact that much of the excellent work that has been done on the resilience and creativity of small fishing communities is defensive in tone. These accounts do not address the significant question of what it means to try to locate fishing activities in larger, more impersonal and more stratified towns. More importantly, they also do not directly challenge the economic assumptions about the desirability of more centralized production. These difficulties are more apparent in Canadian studies because Norwegian studies of regional development and local communities do question conventional assumptions, criticize public policies, and discuss alternative scenarios.[48]

VI. *Discussion*

What, if any, are the lessons to be drawn from the events of the recent past? We think there may be several. At the level of industrial strategies and organization, there will have to be more creative thought on the question of how to fit available resources with appropriate technologies, community structures, and markets. While there is some public sentiment favouring smaller-scale harvesting technologies in both countries, there are no "good guys" or easy answers. Recent, systematic overfishing by the inshore fixed-gear fleet in Nova Scotia, and similar tendencies in North Norway, make it clear that everyone is capable of overexploiting the stocks.[49] The technological sophistication and efficiency of the inshore fleet have certainly improved, and the prime argument that can be made in favour of fixed gear (gillnet, longline, handline) is that they are more selective and less "destructive" of small fish than dragger technologies. Furthermore, smaller-scale harvesting is probably more adaptive to

48. O. Bronx, *Hva Skjer i Nord-Norge* (Oslo: Pax, 1966); O. Bronx, *supra* note 38; R. Nilsen, "Konsolidering og Lokale Økonmiske Prosessar i ein Øykommune" (1980) 21 Tidsskrift for Samfunnsforskning 255; R. Nilsen, *Gjenstridige Fjordfolk: Arbeidsliv, Etnisitet og Rekruttering i to Nord-Norske Fjordområder* (Tromsø: Forut, 1990).

49. However, one must be careful to avoid blaming victims. Some of the pressures for overfishing current stocks by the fixed gear fleets are certainly related to prior overfishing by offshore dragger fleets.

persisting stock fluctuations. However, the problems sometimes created by seasonal plant operations will have to be modified by harvesting plans and strategies which can ensure more consistent delivery of raw materials.

Finally, more attention has to be paid to market prospects in both regions. In Norwegian fisheries, the prevalence of indirect marketing (i.e. through cooperative sales organizations and independent exporters) has excluded processors from acquiring first-hand knowledge of market developments. In addition, processors were, until recently, prevented from exporting their own products, as this was a specialized and protected trade.[50] Recent amendments of relevant legislation, however, has made it possible for processors to establish their own export business, and some have been quick to take advantage of this.[51] The full impact of this new legislation remains to be seen, but there is certainly a growing awareness among processors of the benefits of more direct links with markets and customers.

A longstanding flaw in Atlantic Canadian fisheries is the assumption that one can sell what one can catch. This logic frequently tied the industry to the low end of fish markets, because not enough attention was paid to market cycles, and to strategies aimed at maximizing returns from higher-quality products. Equally important, the current crisis has led to the loss of a number of markets which may be difficult to recapture. It is, for instance, a commonplace observation at fishery advisory meetings these days that if the cod returned tomorrow, one would not have anywhere to sell it.

At the level of class and politics, we need to reexamine the nature and type of representation that fishers and other folk have in management practices. As liberal polities based on representative, rather than direct, participatory democracy, both Norway and Canada have been prone to regular debates on the scope and quality of interest representation. In Atlantic Canadian fisheries, the question of who's representing whom is a recurrent one, as is the problem of how to structure advisory processes to secure genuine representation for all relevant groups. At the lower levels of the administrative process this can, and frequently does, lead to misunderstandings and recriminations, with one perverse outcome in the Nova Scotia area involving industry demands that DFO pick the representatives because the fishers distrust one another.

Just representation is largely a question of organization; of being able to identify and coordinate common interests and act upon them. In this, Norwegian fishers have certainly been more successful than their Atlantic

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50. A. Hallenstvedt, *supra* note 15.
51. G. Barrett & S. Jentoft, *supra* note 8.

Canadian counterparts. This is not to say that current institutions are perfect, but rather that they have been able to incorporate a cross-section of industrial interests and opinions. There is, of course, always the question of whose interests are being served or accommodated by current arrangements. The fact that the industry as such, through the participation of the Fishers's Association on government boards and committees, is well represented does not necessarily imply that all groups are given a fair hearing.[52] Besides, there is the emerging question of whether, and how, to incorporate non-industrial groups as full fledged members of the fisheries policy community—particularly in areas pertaining to resource conservation and management.

While there are no easy solutions to these perennial debates about the nature and scope of representation, one principle which might usefully guide selection processes would be a clear specification of the activities and powers of different administrative and advisory levels, and a corresponding definition of "interested parties". In the Norwegian context, the criteria for participation need to be more sharply defined, and the role of regional and local agencies reconsidered. Recent challenges and demands from public interest groups (and northern politicians) call for a discussion on how policies should be decided and who should be represented when they are. In Atlantic Canada, the main problem is one of representativity; of making sure that those who participate are in fact speaking on behalf of those they claim to represent. This is largely a question of better organization.

There are, however, dilemmas here. Broader, non-industrial participation, for instance, would accommodate demands for a more responsible and open process, but could well undermine the legitimacy of, say, management decisions within the industry proper. More powers vested in user-groups and lower level agencies may increase participation and legitimacy, but would certainly make decision-making more complex and time-consuming. Having the industry choose its own representatives would remove some uncertainty as to who is speaking for whom, but the process may be both painful and paralyzing.[53]

Another basic modification which needs to be considered, particularly in Atlantic Canada, is an alteration in the style of interaction between

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52. Although virtually all groups within the fisheries have been able to organize, just representation does not necessarily follow from this. The Fishermen's Association has long had privileged access to government, while other organizations, like the Norwegian Association of Fish Processors, and the plant workers, do not have the same political clout—and have just recently been represented in management policy-making.

53. Such changes would complement the possible need to devolve scientific information-gathering and decision-making. See J. Wilson & P. Kleban, *supra* note 33.

politicians, bureaucrats and scientists, on the one hand, and fisherfolk on the other. It is too frequently the case that politicians, bureaucrats and scientists look and act like members of Galbraith's "technostructure", dressing formally, thinking in terms of large organizations, and implicitly seeking out the input and support of individuals who look and think like them. In practice, this means that well-educated members of large fishing organizations acquire significant influence in committee meetings and lobbying activities because they share important elements of the same corporate structure. Like it or not, democracy, when it is working well, is frequently an abrasive, ego-threatening undertaking. Those charged with management responsibilities might do well to have apprenticeships in the fishing communities themselves.[54]

On the Norwegian side, the style of bureaucrats, politicians, and organizational leaders is more informal and straightforward. The policy community is small and fairly transparent; communication as much bottom-up as top-down.[55] There are, of course, variations in administrative capacity and lobbying strategies, and bureaucrats may, in background and outlook, have more in common with the big players in the offshore sector than with the average small scale operator. Whether this makes any difference to the content of policies and decisions is, however, far from clear.

Another set of problems arise in the political domain proper. Politicians usually operate with short, inter-election timelines, and frequently look for quick, uncontroversial solutions to get themselves successfully through that next election. This typically means that they may be unwilling to spend the necessary time to develop new plans and directions or risk the political fallout from new ventures—which is understandable given the "logic" of democratic politics. In addition, fisheries issues are normally not prominent on the agenda of most politicians. On this point, a crisis always helps—as shown by the recent increase in government intervention and public debate on both sides of the Atlantic.

Further, and with respect to Canada in particular, the cabinet ministers who are usually selected for the fisheries portfolio at the federal level are, with some strong exceptions, the least talented members of the cabinet. Given the relatively low status of the portfolio, ministers also spend a fair amount of time trying to vacate the post for a more desirable position. The

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54. In Atlantic Canada, a considerable number of fisheries scientists can be identified in mixed audiences by their more casual clothing and demeanor.

55. One official in the Norwegian Ministry of Fisheries in fact told us that it is not altogether unusual for skippers, while at sea, to call up the ministry on the wireless demanding to speak to a top level bureaucrat, or even the Minister, to clarify rules and regulations. And officials will, if they can, oblige as a matter of course.

turnover, as well as the lack of talent, is exacerbated by the unusually-concentrated power these individuals have. A job which should command real ability frequently gets anything but. In Norway, fisheries is a portfolio that requires knowledge of the industry and the (tacit) approval of the Fishers's Association. The typical minister will be a person with some experience from the fisheries—as a bureaucrat, organizational executive or a fisher—often with a genuine committment to the industry. With some notable exceptions, few stand out as typical career politicians, and most will not consider the post a springboard to higher office. Turnover, then, is no higher than for other portfolios.

Finally, and again perhaps more typical for Atlantic Canada than Norway, political parties and other interest groups trying to advance the interests of fisherfolk and their communities frequently make the mistake of viewing them through ideological lenses which make little accommodation for the peculiarities of the industry. This is particularly true in Nova Scotia, where various organizing efforts have foundered on a lack of appreciation of the commitment people have to fishing as an individualistic way of life.[56]

At the level of culture and communities, there are a number of issues which are going to require closer attention. If the fisheries are going to prosper, participants—on both sides of the Atlantic—are going to need more general education, as well as job-specific training. The relative lack of general education limits personal flexibility, as well as the ability to deal effectively with the outside world; the lack of job-specific training means that people are not capable of producing competitive products, or the infrastructure needed to compete.[57] In order to be attractive to potential recruits, the status and standing of the fisheries in the national economy must be strengthened. One way of doing this is to strengthen education, job training, and the general attractiveness of coastal communities. On this particular point, Norway is probably well ahead of Atlantic Canada.

The recent retreat of the state in many industrial systems may force communities to look inward for resources, both cultural and financial, to bridge the gap to a more stable future. In Atlantic Canada, the decline of government resources means that many communities are having their existence directly threatened; some are meeting the challenge with

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56. R. Apostle, L. Kasdan & A. Hanson, "Work Satisfaction and Community Attachment Among fishers in Southwest Nova Scotia" (1985) 42 Can. J. of Fish. and Aquat. Sci. at 156; V. Thiessen & A. Davis, "Recruitment to Small Boat Fishing and Public Policy in Atlantic Canadian Fisheries" (1988) 25 Can. R. Sociol. & Anthrop. 603.

57. D. Patton, *Industrial Development and the Atlantic Fishery Opportunities for Manufacturing and Skilled Workers in the 1980s* (Toronto: James Lorimer, 1981).

development plans of their own. In Norway, government support has not declined significantly. During the recent crisis a "coastal package" of some 126 million Norwegian kroners was put together to assist fishers as well as processors. In addition, price subsidies and unemployment insurance were increased.[58] There is thus, at present, no indication that Norwegian coastal communities will be left to fend for themselves.

Concluding Remarks

Crises are helpful in that they bring particular issues to the attention of government, politicians and the general public. Whether they are equally instrumental in bringing about change is, of course, another matter. Attention does not always lead to action, and if it does, it may fail to address the complexity of the underlying problems. As indicated, the fisheries crises described above have prompted extensive government intervention in both countries: a crisis package and smaller quotas in Norway, economic support and a moratorium in Atlantic Canada. There has, in other words, been immediate (and sensible) action aimed at alleviating the short-term problems of fishers and local communities.

In terms of more long-term implications, the crises may prove decisive in changing the agenda of fisheries management by bringing certain issues to the forefront. The first concerns the future role of science. With hindsight it seems clear that scientists, on both sides of the Atlantic, erred somewhat in their estimates during the 1980s. In Atlantic Canada, the state of the stocks was obviously overrated and quotas set accordingly. The subsequent collapse of the northern cod stock in particular, came as a big shock to most of those affected. In Norway, stock estimates may have been a little too conservative, and quota cuts too severe, considering the speed with which the resource recovered. In this sense, both crises are a dramatic illustration of the shortcomings of current scientific concepts and procedures. There is, at present, an increasing awareness of how the complexity of the biological environment generates enormous information problems and makes it hard to maintain any pretence of scientific certainty. Besides, scientists work within a social environment and their judgements may not be immune to political pressures. Both factors have already spurred a debate, perhaps long overdue, on the role of numerical analysis and control in fisheries management.

The second issue concerns the choice of harvesting technology and the overall structure of the industry. These have always been matters of dispute, particularly in Norway where inshore fishers and small scale

58. S. Jentoft, *supra* note 5; O. Otterstad, in O. Otterstad & S. Jentoft, eds., *supra* note 6.

operators have been able to challenge the bigger players offshore. Whenever the stocks fail there is always the question of what went wrong and why. On this point the recent crises have sharpened the conflict between inshore and offshore, between the people of local communities and representatives of "big-business", and breathed new life into the debate on the future technology and structure of the fishing industry. The recent crises have also heightened the ecological awareness of public interest groups, generating pressures, not just for more ecologically sound harvesting methods, but also for extending the fisheries policy community beyond those traditionally involved. Demands, on both sides of the Atlantic, for extended representation on management committees and councils, indicates that there is a better balance to be struck in fisheries management between the economic interests of fishers and the broader environmental concerns of the general public. The crises have, in other words, generated pressures for changing management institutions so as to make participation on boards and committees less exclusive and "corporatist". Demands for broader and more open institutions are not very controversial and may well be met. What difference this will make as to the quality of fisheries management and the prospects of avoiding another major crisis is, however, far from clear.